

Goddard Procedures and Guidelines

DIRECTIVE NO. GPG 7120.2
EFFECTIVE DATE: April 21, 1999
EXPIRATION DATE: April 21, 2004

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TITLE: Director

Responsible Office: Code 400/Flight Projects Directorate

Title: Project Management

Preface

P1. PURPOSE

This procedure establishes the process for management of GSFC Provide Aerospace Products and Capabilities (PAPAC) projects.

P2. APPLICABILITY

This procedure applies to all GSFC PAPAC Projects.

P3. AUTHORITY

NPD 7120.4 – NASA Program/Project Management

P4. REFERENCES

NPG 7120.5 NASA Program and Project Management Processes and Requirements
NPG 1000.2 NASA Strategic Management Handbook
GPG 7120.1 Program Management
GPG 8730.4 Quality System
GPG 8700.1 Design Planning and Interface Management

P5. CANCELLATION

None

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P6. RECORDS

Quality Record Title	Record Custodian	Retention
Project Plan	Project Office; if disestablished, then Directorate Office.	<u>NRRS 1/22A</u> (Permanent. Retire to FRC when 5 years old in 5-year blocks. Transfer to NARA when 10 years old.)

Procedure

1. DEFINITIONS

Enterprise – One of four strategic business areas through which NASA implements missions and communicates with customers.

PAPAC – Abbreviation for Provide Aerospace Products and Capabilities (PAPAC), one of the four critical crosscutting processes defined in the NASA Strategic Management Handbook.

Process – The term, as used in this document, refers specifically to, and is synonymous with, the PAPAC processes defined in NPG 7120.5.

Product – Any deliverable(s) subject to the Goddard QMS, including all hardware, software, services, mission data, science, and technology output to customers.

Program – An activity within an Enterprise having defined goals, objectives, requirements, and funding; and consisting of one or more projects, reporting to the NASA Program Management Council (PMC), unless delegated to a Governing PMC.

Program Commitment Agreement (PCA) – The contract between the Administrator and the cognizant Enterprise Associate Administrator (EAA) for implementation of a program.

Program Plan – The document that establishes the overall baseline for implementation as well as the agreements among the EAA, Lead Center Director/Center Director, and program manager. It is the customer agreement and the initial quality plan for the program and documents, among other elements, plans for tailoring of the program's processes.

Project – An activity designated by a Program and characterized as having defined goals, objectives, requirements, Life Cycle Costs (LCC's), a beginning, and an end. Selected aerospace products can be further designated as Goddard projects when recommended by a sponsoring directorate and approved by the Center Director or his/her designee. For the Goddard QMS, a project is "a set of management,

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administrative, and technical activities leading to the delivery of a Center product in response to customer requirements (see Goddard Procedures and Guidelines (GPG) 1310.1) and in accordance with Agency and GSFC requirements.” (See NPG 7100.5, NPG 7120.5, and GPG 8730.4).

Project Plan – A document describing the implementation of a Project within a Program, prepared and maintained by the Project. The Project Plan is the project’s customer agreement and the initial quality plan, approved by the Project Manager, Program Manager, and Center Director. Tailoring decisions are documented in the Project Plan.

Tailoring – The adaptation of the PAPAC processes and requirements to be consistent with program and project characteristics, such as size, complexity, cost, risk, and priority. Tailoring of a Goddard Directive normally results in a waiver (GPG 8730.3); (see Paragraph 2.0 – Project Management).

2. PROJECT MANAGEMENT

During the overall conduct of a project, the Project Manager and his/her team shall comply with the themes and requirements enumerated in NPG 7120.5, and subject to the requirements of the Goddard directives and procedures defined in the Goddard Procedures and Guidelines (GPG’s), Procedures and Guidelines (PG’s), and Work Instructions (WI’s). Tailored processes can be developed and approved in lower-level QMS directives when the directive containing the process(es) is approved by the approving authority of the (original) directive being tailored. Tailoring for NASA processes and requirements is approved in the Project or Program Plan; tailoring of a Goddard process results in a waiver when the tailored process exceeds the limits of flexibility defined in the applicable directive.

2.1 RESPONSIBILITY

- a. The Center Director is responsible to initiate Strategic Implementation Plans (NPG 1000.2), foster advanced concept studies, concur in appropriate formulation authorization, appoint a Project Manager, approve the Project Plan, and oversee project implementation. At the recommendation of the sponsoring directorate, aerospace products with LCC’s of \$5M or greater are normally designated as GSFC projects by the Center Director.
- b. The Deputy Center Director is delegated the responsibility and authority by the Center Director to direct Implementation Subprocess of programs and projects and is accountable to the Center director and the Enterprise Associate Administrator (EAA) for the programs and projects. The Deputy Center Director directs the Program Implementation Subprocesses and delegates appropriate authority and responsibility to a Program Manager.
- c. The Associate Center Director (ACD) is delegated the responsibility and authority by the Center Director to direct the Program Formulation Subprocess (Figure 1) and is accountable to the Center Director and the EAA. He/she delegates appropriate authority and responsibility to a Program Integration Manager (PIM). The ACD is also responsible for the integration of the Enterprise Programs across the Center and through their life cycle.

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- d. The Director of System Technology and Advanced Concepts (STAAC) leads the Formulation Subprocess and, with the consultation of the Director of Flight Projects, prior to approval for Project Formulation, appoints a Project Formulation Manager (PFM) after receiving recommendations from the Chief Project Formulation Office with the concurrence of the Program Manager and the customer.
- e. The Director of Flight Projects leads the Implementation Subprocess and, with the consultation of the Director of STAAC, appoints a Project Manager after receiving recommendations from the Program Manager and concurrence of the customer, headquarters and the Goddard Center Director. The Project Manager selection will take place within two years prior to Project approval and the Project Manager will lead the effort through the remainder of Formulation, Approval, and Implementation.
- f. The Director of Suborbital Projects and Operations (SPO) administers the Formulation, Implementation, and Evaluation of assigned programs and projects.

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PROGRAM/PROJECT LIFE CYCLE OVERVIEW Within the Provide Aerospace Products and Capabilities (PAPAC) Process

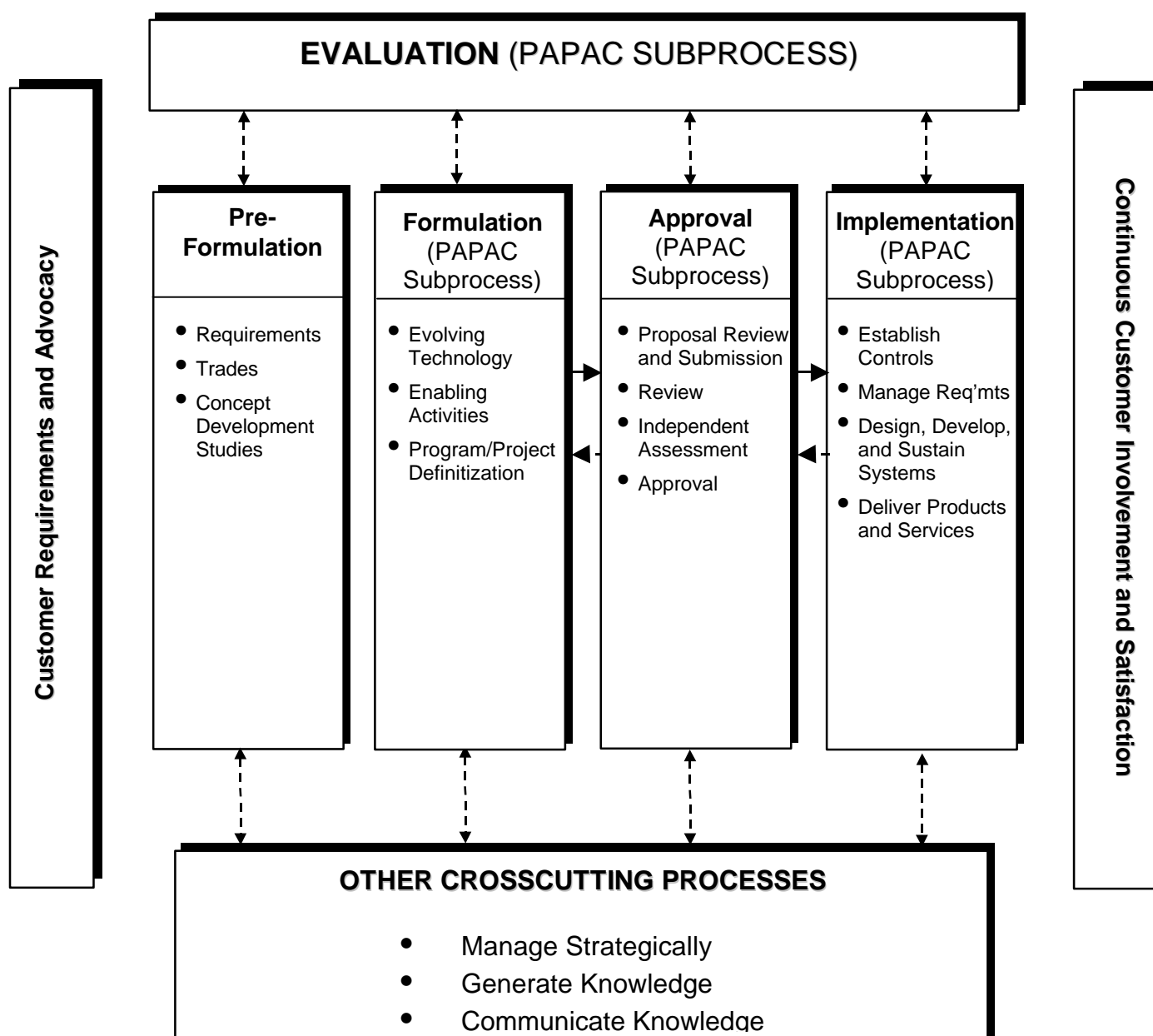


Figure 1

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The Program Manager is responsible to oversee all aspects of the Formulation, Approval, Implementation, and Evaluation of the projects within his/her program, including integration of all objectives and requirements, meeting or updating the approved PCA and program plan, and initiating tailoring of processes and requirements throughout his/her program. The program manager responsibilities are delineated in GPG 7120.5

- g. The GSFC Project Manager/Project Formulation Manager, whoever assigned, is responsible for all aspects of the Project Formulation and Implementation, including products and their conformance to the Goddard Quality Management System, cost, schedule, management, and tailoring activities. The Project relationships, expected products, schedule, and resources, and planned Project Formulation are defined in the Project Formulation Plan. The Project Formulation Plan and the Project Formulation Agreement are prepared by the PFM, in accordance with Goddard Directives, for presentation to the New Business Committee (NBC). The expected cost, schedule, technical performance, and planned project implementation are defined in the Project Plan which shall be maintained in conformance with GPG 87303, Quality Manual.

The Project Manager/Project Formulation Manager is also responsible for the performance of the project/study team when related to project matters. The Project Manager/Project Formulation Manager is responsible for the project-related training that is needed by project personnel in order to do their jobs. The Project Manager/Project Formulation Manager is responsible for the performance evaluations of the staff directly assigned to the project as well as providing inputs to appropriate supervisors for the performance evaluation of personnel that are assigned to the project in a colocated fashion.

The Project Manager/Project Formulation Manager reports status to the Goddard PMC, and its Governing PMC, if appropriate, through the Program Manager, and the Director of STAAC and the Director of Flight Projects.

2.2 STAFFING ASSIGNMENTS

Staffing assignments between STAAC and FPD for assignments during project life cycle:

- a. Assignment of a PFM for formulation will be made from existing STAAC, FPD, Suborbital Projects and Operations (SPO), or Applied Engineering and Technology Directorate (AETD) personnel.
- b. If a non-STAAC individual is assigned, he/she will be reassigned organizationally (“rebadged”) to STAAC (or SPO) if assignment occurs before 2 years prior to project approval. Otherwise, he/she will be matrixed (assigned to support, but not organizationally reassigned) to STAAC for assignment as a PFM.
- c. If the PFM is a STAAC individual, he/she will be “rebadged” to FPD to continue as the Project Manager or another project management position such as Deputy Project Manager, Observatory Manager, Instrument Systems Manager or Operations Manager after Goddard PMC project approval. If a new FPD Project Manager is assigned, the STAAC PFM may be reassigned within STAAC.

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- d. If the PFM is assigned from SPO to an SPO project within 2 years prior to project approval, he/she will remain in SPO and will frequently serve as the Project Manager after Formulation.

2.3 SUPPORT TO CENTER MANAGEMENT FUNCTIONS

The Project Manager/Project Formulation Manager is responsible for providing the necessary support to Centerwide management functions, such as:

- a. Center manpower allocation.
- b. Budget generation.
- c. Status review process.
- d. Independent technical review process.
- e. Provide input to supervisor in support of personnel management functions including the Center awards and promotion processes.

2.4 PROJECT FORMULATION

Project Formulation is the PAPAC subprocess that defines a project concept and plans to meet mission/project objectives, including budget, schedule, and technology goals, as specified in the respective program plan. Flight project formulation team is led by the STAAC-appointed formulation manager. The Director of Suborbital Projects and Operations (SPO) appoints Study Managers for formulation of suborbital and other assigned projects. The primary inputs to Project Formulation are the Formulation Authorization Document prepared by the program, the Program Plan, and the Goddard Strategic Implementation Plan. Primary outputs of the subprocess are the Project Plan, which documents the project's approach to satisfaction of requirements, including tailoring decisions, and the LCC estimate. The Project Formulation Subprocess shall conform to and/or address the processes and activities described in NPG 7120.5 and shall normally result in at least the following additional plans:

- a. System Plan
- b. Technology Requirements Plan
- c. Technology and Commercialization Plan
- d. Operations and Business Plan
- e. Infrastructure and Upgrades Plan
- f. Capture Process Knowledge Plan

2.4.1 Reporting of Status During Formulation

The PFM will prepare and submit/present status to the STAAC Directorate Formulation Review (DFR) with the Chief of the Project Formulation Office and the Program Manager in attendance. Status will also be presented at selected Goddard PMC Monthly Status Review (MSR).

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2.5 PROJECT APPROVAL

The Project Manager obtains the approval of the Program Manager to enter the Project Approval Subprocess. The Project Manager initiates a directorate-level review of the proposed project prior to the Goddard PMC Review, or Gateway Review. The Project Manager obtains the commitment of Center resources from the New Business Committee (NBC). The project presents the project plan and the supporting information to the Governing PMC (which may be the Goddard PMC). The Evaluation Subprocess provides independent evaluation results to the Governing PMC, in the form of Non-Advocate Review (NAR) or Mission Confirmation Review (MCR) results and Independent Assessments (IA's), if performed. Based on the Governing PMC review and recommendation, the project plan is signed by the Project Manager, Program Manager, and Center Director. Approval of the Project Plan may be withheld until the Program Plan has been changed and subsequently approved by the respective EAA (see NPG 7120.5). The approved Project Plan shall be maintained in the Goddard Directives Management System as a "PG." Sensitive data must be removed before submission to the Center Directives Manager.

2.6 PROJECT IMPLEMENTATION

Project Implementation is the PAPAC subprocess that develops, tests, and delivers verified and validated products and services to the customer(s). Project Implementation is characterized by the derivation of project requirements from the program plan and the Center Strategic Implementation Plan, and the detailed definition of processes, design plans (GPG 8700.1), products, and functions initially defined and approved with the approval of the Project Plan during the Formulation and Approval Subprocesses. The Project Implementation Subprocess shall conform to and/or address the processes and activities described in NPG 7120.5, maintaining current plans and establishing required quality records.

2.6.1 Reporting of Status During Implementation

The Project Manager will prepare and submit present status to the FPD MCR. Status will also be presented at selected Goddard PMC MSRs.

2.7 PROJECT EVALUATION

NASA, through the Independent Program Assessment Office and the Chief Engineer, conducts independent assessments as required by NPG 7120.5 and defined in the Program and Project Plans, including tailoring of evaluation processes to meet program needs.

2.8 ACQUISITION (CAPTURE) OF PAPAC PROCESS KNOWLEDGE

The Project shall prepare and submit appropriate metrics, project history and lessons learned for the PAPAC Subprocesses in response to the NASA Chief Engineer or his/her designee(s). Such information is to be used to determine the efficiency and effectiveness of the PAPAC process and its subprocesses, and to develop process improvements.

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2.9 QUALITY RECORDS

See GPG 1060.2, Management Review and Reporting for Programs and Projects, for quality records applicable to the Goddard management review and reporting process. Status reviews and reports may be accumulated and maintained by the Goddard PMC as Quality Records.

Projects shall identify, maintain and control selected Project records as Quality Records (GPG 1440.7, Control of Quality Records) when they:

1. Indicate product compliance with customer's specifications or other requirements, and/or
2. Indicate effectiveness of Quality System elements, such as non-conformance reports and subsequent closures.

The original Project Plan shall be retained by the Project Office as a Quality Record.

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CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	4/21/99	